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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,967	02/25/2004	Jun-young Kim	249/449	8477

7590 09/21/2005

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EXAMINER
SOWARD, IDA M

ART UNIT	PAPER NUMBER
2822	

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/784,967	KIM ET AL.	
	Examiner	Art Unit	
	Ida M. Soward	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,9,22,23,27 and 37* is/are rejected.

7)☒ Claim(s) *2-8,10-21,24-26,28-36 and 38-41* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2-25-04 & 5-24-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the application filed February 25, 2004.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 9, 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehrichs et al. (US 6,806,111 B1).

In regard to claim 1, Ehrichs et al. teach s silicon optoelectronic device, comprising: an n- or p-type silicon-based substrate 12; a doped region, formed on a first surface of the substrate 12 and doped to be an opposite type from that of the substrate 12, the doped region providing photoelectrical conversion; a light-emitting device section 22 formed on the first surface of the substrate 12; and a light-receiving device section 24 formed on the first surface of the substrate 12, wherein the light

emitting device section 22 and the light-receiving device section 24 use the doped region in common (Figure 20, column 3, lines 9-67).

In regard to claim 23, Ehrichs et al. teach optical transceiver, comprising: a silicon optoelectronic device panel having an array of silicon optoelectronic devices capable of detecting and emitting an optical signal arranged in an n- or p-type silicon-based substrate 12; and an electrode structure 86 selectively controlling detection and emission of each of the silicon optoelectronic devices, wherein each of the silicon optoelectronic devices includes: a doped region, formed on a first surface of the substrate 12 and doped to be an opposite type from that of the substrate 12, to provide photoelectrical conversion; a light-emitting device section 22 formed on the first surface of the substrate 12; and a light-receiving device section 24 formed on the first surface of the substrate 12, wherein the light-emitting device section and the light-receiving device section use the doped region in common (Figure 20, column 3, lines 9-67).

In regard to claims 9 and 27, Ehrichs et al. teach the light-receiving device section 24, the substrate 12 and the doped region form an MOS transistor structure (Figure 20, column 3, lines 9-67).

However, Ehrichs et al. fail to explicitly teach the light-receiving device section use the doped region in common for photoelectrical conversion.

In regard to the light-receiving device section use the doped region in common for photoelectrical conversion, claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function, In re Danly, 263, F.2d 844, 847,

120 USPQ 528, 531 (CCPA 1959). Apparatus claims cover what a device is, not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made for the light-receiving device section of the silicon optoelectronic device as taught by Ehrichs et al. to use the doped region in common for photoelectrical conversion to increase to speed of the electronic component.

Claims 22 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehrichs et al. (US 6,806,111 B1) as applied to claims 1, 9 and 23 above, and further in view of Craig et al. (US 2002/0181915 A1).

Ehrichs et al. teach all mentioned in the rejection above.

However, Ehrichs et al. fail to teach a monocrystalline silicon wafer.

Craig et al. teach a monocrystalline silicon wafer 22 (Figure 1, page 2, paragraph [0033]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the silicon optoelectronic device as taught by Ehrichs et al. with the silicon optoelectronic device having a monocrystalline silicon wafer as taught by Craig et al. to include a material having a small number of defects (page 2, paragraph [0031]).

Allowable Subject Matter

Claims 2-8, 10-21, 24-26, 28-36 and 38-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to silicon optoelectronic devices:

Miwada (5,631,702)

Nagata (3,659,159)

Reedy et al. (US 2002/0131727 A1)

Rockwell et al. (US 2003/0020121 A1)

Tanabe et al. (5,565,676)

Van Arendonk et al. (US 6,758,608 B2)

Whight et al. (5,223,919)

Yoshimura et al. (US 6.693,736 B1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ida M. Soward whose telephone number is 571-272-1845. The examiner can normally be reached on Monday - Thursday 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

IMS
September 18, 2005

John M. Howard
AU 2822